

Reading Assignments for Week 8

- Monday, March 3: Sections 8.1, 8.2.1, and 8.2.2 (pp. 311–322).
- Wednesday, March 5: Sections 8.2.3 and 8.2.4 (pp. 322–337).
- Friday, March 7: Sections 8.3, 8.4, and 8.5 (pp. 337–351).

Homework #6 — due Friday, March 7

From lecture of Friday, Feb 28

1. **Problem 7.4.** Note: your plots of p_0 , p_1 , and p_2 are supposed to have the R and T states combined. For a particular $\Delta\epsilon$ there will be the three probabilities plotted as a function of ligand concentration.
2. **Problem J: Plotting Hemoglobin Binding for the Pauling Model**
 - (a) Starting from the grand partition function for the Pauling model, Eq. (7.45), derive the expression for $\langle N \rangle$ given Eq. (7.46).
 - (b) Take as the single oxygen binding energy $\epsilon = -28k_B T$, with reference chemical potential $\mu_0 = -24k_B T$ and concentration $c_0 = 8$ mM. Plot the average occupancy of oxygen molecules bound to a hemoglobin molecule as a function of oxygen concentration (similar to Fig. 7.23 but with oxygen concentration as the horizontal axis) for $J = 0$ and also for two $J \neq 0$ values. Pick values that make a visible difference in the shape of the curve.

3. Problem 7.7

From lecture of Monday, Mar 3

4. Problem 8.1ab

5. Problem 8.2

From lecture of Wednesday, Mar 5

6. Problem 8.5

7. Problem 8.7